

hereto is a marked-up version of the changes made to the claims by the current amendment, which is captioned "Version with markings to show changes made." The amendments and new claims find full support in the original specification, claims and drawings. No new matter is presented. In view of the above amendments and following remarks, Applicant respectfully requests favorable reconsideration and a timely indication of allowance.

The Examiner rejected claims 2 to 4 and 6 under 35 U.S.C. § 102(e) as allegedly anticipated by Panescu et al. (U.S. Patent no. 6,056,745). Additionally, the Examiner rejected claims 9 to 11 and 19 to 23 under 35 U.S.C. § 103(a) as allegedly unpatentable over Panescu, and claims 5, 7, 8 and 12 to 18 under 35 U.S.C. § 103(a) as allegedly unpatentable over Panescu in view of Ashley (U.S. Patent No. 6, 176, 857). Applicant respectfully traverses these rejections.

Independent claims 2 and 6 recites that the probe body is "generally rigid from its proximal end to its distal end so that the body cannot bend during ablation." Panescu does not disclose "a generally rigid probe body" as recited in claims 2 and 6, but instead discloses "a flexible catheter body" (column 4, lines 51 to 53).

The Examiner states that Panescu's catheter has a generally rigid body by means of a stylet 130. Applicant respectfully submits that the stylet does not render Panescu's "flexible catheter body" rigid as defined in claims 2 and 6. As explained in Panescu, the stylet is provided for movement of the temperature sensing element. Specifically, the "stylet 126 extends through the catheter body 22 within a braided protective sleeve 128 . . . [and t]he proximal end of the stylet 126 is attached to a control knob 130 on the handle 20." (Column 19, lines 21 to 28.) Thus, the stylet extends essentially through the entire length of the catheter body, which in turn extends through the venous system of the patient. If the stylet rendered the catheter body generally rigid so that the it cannot bend during ablation, as claimed, one could not advance the catheter body through the venous system as directed by Panescu. Additionally, Panescu expressly states that the invention incorporates a "flexible catheter body". (See column 4, line 52.)

Moreover, there is no motivation to modify Panescu's device to have a rigid body because doing so would destroy its intended function, namely, to feed the catheter body through the venous system to gain access into interior regions of the body. (See generally column 1, lines 19 to 21.) As the Examiner is aware, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. M.P.E.P. § 2143.01.

Accordingly, Applicant respectfully submits that claims 2 to 4 and 6 are not anticipated by Panescu under 35 U.S.C. § 102(e).

Claims 9 to 11 and 19 to 23, which were rejected under section 103 as obvious over Panescu, all depend, directly or indirectly, from claim 6. As set forth above, there is no motivation to modify Panescu's device to be generally rigid so that the body cannot bend during ablation, as claimed. Accordingly, Panescu does not render obvious dependent claims 9 to 11 and 19 to 23.

Further, claims 19 to 21 recite that the probe body has a length ranging from about 3.5 inches to about 12 inches, from 5 inches to about 10 inches, and from about 7 inches to about 8 inches, respectively. The Examiner states that the disclosure describes these parameters as being merely preferable and does not describe them as contributing any unexpected result to the probe, and thus are a matter of design choice. Applicant respectfully disagrees.

As set forth above, Panescu is directed to a catheter that is fed through the venous system of a patient. The catheter body must be sufficiently long to accomplish this function, i.e., about 100 cm. Panescu provides no motivation to shorten the body to 12 inches or less, as presently claimed. Moreover, doing so would destroy the intended function of Panescu, which, as set forth above, is improper. Accordingly, for this reason as well, claims 19 to 21 are allowable over Panescu.

With respect to claims 5, 7, 8 and 12 to 18, these claims are similarly dependent from independent claims 2 and 6. As set forth above, Panescu fails to teach or suggest the limitations of claims 2 and 6.

Ashley does not remedy the deficiencies of Panescu. Ashley is directed to a surgical instrument including a tubular probe and cannula. The tubular probe "comprises a handle 704, an orientation indicator 710, a stem 712, a flexible portion 714 and a split tip 716." (Column 10, lines 10 to 15.) As shown in Figure 7, the split tip 716 is mounted at the distal end of the flexible portion 714. Ashley's design does not include a generally rigid probe body comprising an ablation electrode at its distal end, as presently claimed. To the extent that Ashley teaches that a portion of the probe body is rigid, it does not teach an ablation electrode at the distal end of the rigid body. Instead Ashley teaches that the electrode is mounted at the end of the flexible portion. Moreover, Ashley provides no motivation to make this flexible portion rigid, as Ashley teaches that the flexible portion is deflected. (See column 10, lines 28 to 31.)

Accordingly, neither Panescu nor Ashley teaches or suggests a probe with an ablation electrode at the distal end of a generally rigid probe body that cannot bend during ablation, as recited in independent

claims 2, 6 and 40. Applicant therefore respectfully requests that the rejection under section 103 be withdrawn.

Additionally, Applicant has added new dependent claims 48 to 53. Claims 48 to 50 depend from claims 2, 6 and 40, respectfully, and recite the further limitation that the ablation electrode has an exposed surface that is conductive around a full circumference of the exposed surface. Claims 51 to 53 depend from claims 48 to 50, respectively, and recite the further limitation that substantially the entire exposed surface of the ablation electrode is conductive. These claims are similarly neither taught nor suggested by the cited references.

As set forth above, Panescu is directed to a flexible catheter and does not teach or suggest a rigid body, and thus does not anticipate or render obvious claims 48 to 53. Ashley is directed to a probe with a split electrode at its distal end. As described throughout Ashley, the split electrode comprises a conductive half (100) and a nonconductive half (102). (See, e.g., column 4, lines 24 to 25 and Figs. 1A and 1B.) A primary object of Ashley's invention is to provide an apparatus for heating a first of two juxtaposed layers of tissue without substantially heating a second of the juxtaposed layers of tissue. (See column 2, lines 6 to 12.) This object is achieved using a split electrode, as provided in all of the embodiments described in Ashley. Thus, Ashley does not teach or suggest an ablation electrode having an exposed surface that is conductive around a full circumference of the exposed surface, as recited in claims 48 to 50. Instead, Ashley touts the desire to have an entire half of the circumference be non-conductive. Further, Ashley does not teach or suggest that substantially the entire exposed surface of the ablation electrode is conductive, as recited in claims 51 to 53.

Moreover, there is no motivation to combine Panescu with Ashley to arrive at the invention recited in claims 48 to 53. Modifying Ashley's probe to include Panescu's non-split electrode would destroy the intended function of Ashley, namely, to selectively ablate tissue with only a side of a tip electrode. Accordingly, even the combination of Panescu and Ashley does not render obvious new claims 48 to 53.

Pending claims 24 to 39 and 41 to 47 have been withdrawn from consideration. These claims are dependent on claims 2 and 6, however, and as such, they are believed to be allowable. No further search is required in connection with these claims. Accordingly, Applicant respectfully requests that claims 24 to 39 and 41 to 47 also be allowed.

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In view of the above amendments and remarks, Applicant respectfully submits that all of claims 2 to 53 are patentably distinct over the prior art and that all the rejections to the claims have been overcome. Reconsideration and reexamination of the above Application is respectfully requested. If there are any remaining issues that can be addressed by telephone, Applicant invites the Examiner to contact the undersigned at the number indicated below.

Respectfully submitted,

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VERSION TO SHOW MARKINGS

In the Claims:

Please amend claims 2, 6, 26 and 40 as follows:

2. (Twice Amended) An irrigation ablation probe comprising:

a [generally rigid] probe body having proximal and distal ends and comprising an ablation electrode at its distal end, wherein the ablation electrode defines an inner cavity, the ablation electrode having at least one irrigation opening through which fluid can pass from the inner cavity to the outside of the ablation electrode, the probe body being generally rigid from its proximal end to its distal end so that the body cannot bend during ablation;

means for introducing fluid into the inner cavity; and

a handle mounted at the proximal end of the probe body, the handle comprising a housing having a generally open interior.

6. (Three Times Amended) An irrigation ablation probe comprising:

a [generally rigid] probe body having proximal and distal ends and comprising an ablation electrode at its distal end, the ablation electrode having at least one irrigation opening through which fluid can pass to the outside of the ablation electrode, the probe body being generally rigid from its proximal end to its distal end so that the body cannot bend during ablation;

a handle mounted to the proximal end of the probe body, the handle comprising a housing having a generally open interior; and

an infusion tube having proximal and distal ends and extending through the probe body for introducing fluid into the ablation electrode, the distal end of the infusion tube being attached to the ablation electrode.

26. (Amended) An irrigation ablation probe according to claim 6, wherein the generally rigid probe body comprises:

tubing having proximal and distal ends and at least one lumen extending therethrough; wherein the ablation electrode is mounted at the distal end of the tubing;

wherein the infusion tube extends through one of the at least one lumens of the tubing, and wherein the distal end of the [infusion] infusion tube is in fluid communication with the at least one irrigation opening in the ablation electrode; and

a stiffening wire extending through one of the at least one lumens of the tubing.

40. (Amended) An irrigation ablation probe comprising:

a [generally rigid] probe body having proximal and distal ends and comprising an ablation electrode at its distal end, wherein the [generally rigid] probe body is generally rigid from its proximal end to its distal end so that the body cannot bend during ablation and comprises a malleable material; and

a handle mounted to the proximal end of the probe body.